

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: markspencer

Timestamp: [year=2008; month=12; day=16; hr=15; min=47; sec=32; ms=43;]

=====

Application No: 10505328 Version No: 2.0

Input Set:

Output Set:

Started: 2008-12-01 16:32:26.120
Finished: 2008-12-01 16:32:26.958
Elapsed: 0 hr(s) 0 min(s) 0 sec(s) 838 ms
Total Warnings: 13
Total Errors: 0
No. of SeqIDs Defined: 13
Actual SeqID Count: 13

Error code	Error Description
W 213	Artificial or Unknown found in <213> in SEQ ID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (2)
W 213	Artificial or Unknown found in <213> in SEQ ID (3)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)

<110> Korea Advanced Institute of Science and Technology

<120> CONSTRUCTION OF NOVEL STRAINS CONTAINING MINIMIZING
GENOME BY Tn5-COUPLED Cre/loxP EXCISION SYSTEM

<130> 02730.0020.PCUS00

<140> 10505328

<141> 2008-12-01

<150> PCT/KR02/02033

<151> 2002-10-31

<150> KR 10-2002-0009647

<151> 2002-02-22

<160> 13

<170> KopatentIn 1.71

<210> 1

<211> 2437

<212> DNA

<213> Artificial Sequence

<220>

<223> TnKGloxP

<400> 1

attcaggctg cgcaactgtt gggaaaggcg atcggtgcgg gcctcttcgc tattacgcca	60
gctgtctctt atacacatct caaccatcat cgtatgaattc gagctcggtt cccgggttga	120
actgcggatc ttgcggccgc aaaaattaaa aatgaagttt tgacggtatac gaaccccaga	180
gtccccgtca gaagaactcg tcaagaaggc gatagaaggc gatgcgtgc gaatcgggag	240
cggcgataacc gtaaaagcactg aggaagcggt cagcccatcc gccgccaagc tcttcagcaa	300
tatcacgggtt agccaaacgct atgtcctgtat agcggtccgc cacacccagc cggccacagt	360
cgtatgaatcc agaaaaagcggtt ccattttcca ccatgatattt cggcaaggcag gcatcgccat	420
gggtcacgac gagatcctcg ccgtcggttca tccgcgcctt gagcctggcg aacagttcg	480
ctggcgcgag cccctgatgc tcttcgttcca gatcatcctt atcgacaaga ccggcttcca	540
tccgagtgacg tgctcgctcg atgcgatgtt tcgcgttgggtt gtcgaatggg caggttagccg	600
gatcaagcgtt atgcagccgc cgcattgtat cagccatgtat ggatactttc tcggcaggag	660
caagggtgaga tgacaggaga tcctgccccgg gcacttcgccc caatagcagc cagttcccttc	720
ccgcttcagt gacaacgtcg agcacagctg cgcaaggaac gcccgtcgtg gccagccacg	780

atagccgcgc tgcctcgct tggagttcat tcagggcacc ggacaggctg gtcttgacaa 840
aaagaaccgg gcgcacctgc gctgacagcc ggaacacggc ggcatacagag cagccgattg 900
tctgttgtgc ccagtcatag ccgaatagcc tctccaccca agcggccgga gaacctgcgt 960
gcaatccatc ttgttcaatc atgcgaaacg atcctcatcc tgtctcttga tccactagat 1020
tattgaagca ttatcaggg ttattgtctc atgagccggat acatatttga atgtatttag 1080
aaaataaac aaataggggt tccgcgcaca tttccccaa aagtgccacc tgcatcgatg 1140
aattgatccg aagttcctat tctctagaaa gtataggaac ttcaattgt cgacaagctt 1200
gatctggctt atcgaattaa atacgactca ctataggag accggaattc attatttga 1260
gagctcatcc atgccatgtg taatcccagc agcagttaca aactcaagaa ggaccatgt 1320
gtcacgcttt tcgttggat cttcgaaag ggcagattgt gtcgacaggt aatggttgtc 1380
tggtaaaagg acagggccat cgccaaattgg agtattttgt tgataatggt ctgctagtt 1440
aacggatcca tcttcaatgt tggcgaat tttgaagttt gctttgattt cattctttt 1500
tttgcgtgcc gtgatgtata cattgtgtga gttatagttg tactcgagtt tggccggag 1560
aatgtttcca tcttctttaa aatcaataacc ttttaactcg atacgattaa caagggtatc 1620
accttcaaacc ttgacttcag cacgcgtctt gtagttcccg tcatcttga aagatatagt 1680
gcgttcctgt acataacctt cgggcattggc actcttggaa aagtcatgcc gtttcatatg 1740
atccggataa cggaaaagc attgaacacc ataagagaaa gtagtgacaa gtgtggcca 1800
tggAACAGGT agttttccag tagtgcaat aaatttaagg gtaagtttc cgtatgtgc 1860
atcaccttca ccctctccac tgacagaaaaa tttgtgccca ttaacatcac catctaattc 1920
aacaagaatt gggacaactc cagtggaaag ttcttcctt ttactcattt tttctaccgg 1980
tacccgggaa tcctctagag tcgacctgca ggcattcaag ctggcgtaa tcatggtcat 2040
agctgtttcc tggtaat ttttatccgc tcacaattcc acacaacata cgagccggaa 2100
gcataaaagtg taaaggctgg ggtgcctaattt gaggtagtca actcacatta attgcgttgc 2160
gctcaactgcc cgcttccag tcggaaatc caagggcgaa ttccgagctcg gtaccggcc 2220
ccccctcgag ggacctaata acttcgtata gcatacatta tacgaagttt tattaagggt 2280
tccggatcctt ctagagtaga cctctagagt cgacctgcag gcatgcaagc ttccagggtt 2340
agatgtgtat aagagacagc tgcattaaatg aatcgccaa cgccggggaa gagggcggtt 2400
gcgtattggg cgctctccg ctccctcgct cactgac 2437

<210> 2
<211> 1511
<212> DNA
<213> Artificial Sequence

<220>
<223> TnCloxP

<400> 2
attcaggctg cgcaactgtt gggaaaggcg atcggtgcgg gcctcttcgc tattacgcca 60
gctgtctttt atacacatct caaccatcat ccatgaattc gagctcggtt ccgcaaaaat 120
taaaaatgaa gttttaaatc aatctaaagt atatatgagt aaacttggtc tgacagttac 180
caatgcttaa tcagtgggc accaataact gcctaaaaaa aattacgccc cgcctgcca 240
ctcatcgccag tactgttgta attcattaag cattctgccc acatggaagc catcacagac 300
ggcatgatga acctgaatcg ccagcggcat cagcaccttgcg tgccttgcg tataatattt 360
gcccatggtg aaaacggggg cgaagaagtt gtccatatttgcg gccacgttta aatcaaaact 420
ggtgaaactc acccaggat tggctgagac gaaaaacata ttctcaataa accctttagg 480
gaaataggcc aggtttcac cgtAACACGC cacatcttgc gaatataatgt gtagaaactg 540
ccggaaatcg tcgtggattt cactccagag cgtatgaaaac gtttcagttt gctcatggaa 600
aacggtgtaa caagggtgaa cactatccca tatcaccagc tcaccgtttt tcattggccat 660
acggaatttc ggatgagcat tcattcaggcg ggcaagaatg tgaataaagg ccggataaaa 720
cttggctta ttttttttaa cggcttttaa aaaggccgtttaa atatccagctt gaaacggcttg 780
gttataggtt cattgagcaa ctgactgaaa tgcctcaaaa ttacttttac gatgccattt 840
ggatataatca acgggtgtat atccagtgat ttttttctcc atttttagctt ctttagctcc 900
tgaaaatctc gataactcaa aaaatacgcc cggtagtgat ctttttcat tatggtgaaa 960
gttggAACCTT CTTACGTGCC GATCAACGTC TCATTTCGC CAAAAGTTGG CCCAGGGCTT 1020
CCCGGTATCA ACAGGGACAC CAGGATTAT TTATTCTGCG AAGTGATCTT CGTCACAGG 1080
TATTATTCTG GCGCAAAGTG CGTCGGGTGA TGCTGCCAAC TTACTGATT AGTGTATGAT 1140
GGTGTAAAAAAGTG AGGTGCTCCA GTGGCTTCTG TTTCTATCAG CATCGATGAA TTGATCCGAA 1200
GTTCCATTCTC TCTAGAAAGTG ATAGGAACCTT CGAATTGTCG ACAAGCTGA TCTGGCTTAT 1260
CGAAATTAAAT ACGACTCACT ATAGGGAGAC CGGAATTGCA GCTCGGTACC GGGCCCCCCC 1320
TCGAGGGACC TAATAACTTC GTATAGCATA CATTATACGA AGTTATATTA AGATCCTCTA 1380
GAGTCGACCTT GCAGGGCATGC AAGCTTCAGG GTTGAGATGT GTATAAGAGA CAGCTGCATT 1440

aatgaatcg ccaacgcgcg gggagaggcg gtttgcgtat tggcgctct tccgcttcct	1500
 cgctcactga c	1511
 <210> 3 <211> 19 <212> DNA <213> Artificial Sequence	
 <220> <223> Outer end transposon recognition (OE) sequence	
 <400> 3 ctgtcttta tacacatct	19
 <210> 4 <211> 34 <212> DNA <213> Artificial Sequence	
 <220> <223> loxP site	
 <400> 4 ataacttcgt atagcataca ttatacgaag ttat	34
 <210> 5 <211> 996 <212> DNA <213> Artificial Sequence	
 <220> <223> KmR gene	
 <400> 5 gcaaaaatta aaaatgaagt tttgacggta tcgaacccca gagtcccgt cagaagaact	60
cgtcaagaag gcgatagaag gcgatgcgcgt gcgaatcggtt agcggcgata ccgtaaagca	120
cgaggaagcg gtcagccat tcgcccggaa gctttcagc aatatcacgg gttagccaacg	180
ctatgtcctg atagcggtcc gccacacccca gccggccaca gtcgatgaat ccagaaaaac	240
ggccattttc caccatgata ttccggcaagc aggcatcgcc atgggtcactg acgagatcct	300
cgcgcgtcggtt catccgcgcc ttgagcctgg cgaacagttc ggctggcgcg agccccctgtat	360
gctttcgatc cagatcatcc tgatcgacaa gaccggcttc catccgagta cgtgctcgct	420
cgatgcgatg ttgcgttgg tggtcgaatg ggcaggttagc cgatcaagc gtatgcagcc	480

gcccgcattgc atcagccatg atggatactt tctcgccagg agcaaggtga gatgacagga	540
gatcctgccc cggcacttcg cccaatagca gccagtccct tcccgcttca gtgacaacgt	600
cgagcacacgc tgcgcaagga acgccccgtcg tggccagcca cgatagccgc gctgcctcgt	660
cttggaggttc attcagggca ccggacaggt cggtcttgac aaaaagaacc gggcgccccct	720
gcgcgtgacacgc ccggaacacgc gcggcatcag agcagccgat tgtctgttgt gcccagtcat	780
agccgaatacg cctctccacc caagcgcccg gagaacctgc gtgcaatcca tcttgttcaa	840
tcatgcgaaa cgatcctcat cctgtctttt gatccactag attattgaag catttatcag	900
ggttatttgtc tcatgagcgg atacatattt gaatgtattt agaaaaataa acaaataagg	960
gttccgcgcga cattcccccg aaaagtgcgc cctgca	996

<210>	6
<211>	947
<212>	DNA
<213>	Artificial Sequence

<220>
<223> GFP gene

<400> 6
attatggta gagctcatcc atgccatgtg taatcccagc agcagttaca aactcaagaa 60

ggaccatgtg gtcacgctt tcgttggat cttcgaaag ggcagattgt gtcgacaggt 120

aatggtgtc tggtaaaagg acagggccat cgccaaattgg agtattttgt tgataatggt 180

ctgctagttg aacggatcca tcttcaatgt tgtggcgaat tttgaagtta gctttgattc 240

cattctttg tttgtctgcc gtgatgtata catttgtgtga gttatagttg tactcgagtt 300

tgtgtccgag aatgtttcca tcttctttaa aatcaataacc tttaactcg atacgattaa 360

caagggtatc acettcaaacc ttgacttcag cacgcgtctt gttagtcccg tcattttga 420

aagatataagt gcgttcctgt acataaccctt cgggcatggc actcttgaaa aagtcatgcc 480

gtttcatatg atccggataa cgggaaaagc attgaacacc ataagagaaaa gtagtgacaa 540

gtgttggcca tggAACAGGT agttttccag tagtgcaaatt aaatttaagg gtaagtttc 600

cgtatgtgc atcaccttca ccctctccac tgacagaaaa ttgtgccca ttaacatcac 660

catctaatttca aacaagaatt gggacaactc cagtggaaaag ttcttctcct ttactcattt 720

tttctaccgg taccggggta tcctcttagag tcgacactgca ggcatttgcag cttggcgtaa 780

tcatggatcat agctgtttcc tggatgtggaaat tggttatccgc tcacaattcc acacaacata 840

cgagccggaa gcataaagtg taaagcctgg ggtgccta at ggtgagcta actcacatta 900
attgcgttgc gtcactgcc cgctttccag tcgggaaatc caaggc 947

<210> 7
<211> 1069
<212> DNA
<213> Artificial Sequence

<220>
<223> CmR gene

<400> 7
gcaaaaatta aaaatgaagt tttaaatcaa tctaaagtat atatgagtaa acttggtctg 60
acagttacca atgcttaatc agtgaggcac caataactgc cttaaaaaaa ttacgcccc 120
ccctgccact catcgagta ctgttgtat tcattaagca ttctgccgac atggaagcca 180
tcacagacgg catgatgaac ctgaatcgcc agcggcatca gcaccttgc gccttgcgta 240
taatatttgc ccatggtgaa aacgggggccc aagaagttgt ccatattggc cacgtttaaa 300
tcaaaaactgg tgaaaactcac ccagggattt gctgagacga aaaaacatatt ctaataaac 360
ccttaggga aataggccag gtttcaccg taacacgcca catcttgcga atatatgtgt 420
agaaaactgcc ggaaatcgcc gtggattca ctccagagcg atgaaaacgt ttca gttgc 480
tcatggaaaa cggtgtaaca agggtgaaaca ctatccata tcaccagctc accgtcttc 540
attgccatac ggaatttcgg atgagcattc atcaggcggg caagaatgtg aataaaggcc 600
ggataaaaact tgtgcttatt ttctttacg gtctttaaaa aggccgtaat atccagctga 660
acggtcttgt tataggtaca ttgagcaact gactgaaatg cctcaaaatg ttctttacga 720
tgccattggg atatatcaac ggtggtatat ccagtgattt tttctccat tttagctcc 780
ttagctcctg aaaatctcgtaa taactcaaaa aatacggcccg gtgtgatct tatttcattta 840
tggtgaaagt tggAACCTCT tacgtgccga tcaacgtctc atttcgcca aaagttggcc 900
cagggcttcc cggtatcaac agggacacca ggatttattt attctgcgaa gtgatctcc 960
gtcacaggtta ttatcgcc gcaaagtgcg tcgggtgatg ctgccaactt actgatttag 1020
tgtatgatgg tgttttgag gtgctccagt ggcttcgtt tctatcagc 1069

<210> 8
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-pMOD<MCS>FP-1

<400> 8
attcaggctg cgcaactgt 19

<210> 9
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-pMOD<MCS>RP-1

<400> 9
tcagtgagcg aggaagcgga ag 22

<210> 10
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-Tn5Ext

<400> 10
agcatacatt atacgaagtt atattaag 28

<210> 11
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-Arb1

<220>
<221> misc_feature
<222> (21)..(30)
<223> n is a or g or c or t

<400> 11
ttgagcgata gacgtacgat nnnnnnnnnn gatat 35

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-Arb2

<400> 12
ttgagcgata gacgtacat 20

<210> 13
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> primer-Tn5Int

<400> 13
tcgacctgca ggcatgcaag cttca 25